

**Application
for
United States Letters Patent**

To all whom it may concern:

Be it known that **Timothy Jon LENNOX**

has invented certain new and useful improvements in

**A PORTABLE AUDIO AMPLIFYING APPRATUS FOR HANDHELD
MULTIMEDIA DEVICES AND USES THEREOF**

of which the following is a full, clear and exact
description.

**A PORTABLE AUDIO AMPLIFYING APPARATUS FOR
HANDHELD MULTIMEDIA DEVICES AND USES THEREOF**

Throughout this application, various publications are
5 referenced. Disclosures of these publications in their
entireties are hereby incorporated by reference into this
application in order to more fully describe the state of the
art to which this invention pertains.

10

BACKGROUND OF THE INVENTION

This invention relates to a portable audio amplifying apparatus
for portable handheld multimedia devices.

15 The original boom box using a cassette player provided an
affordable and portable means to listen to music. The problem
with the original boom box is that the more stable, solid-state
components or integrated circuits that make up the amplifier
and speaker portions of a boom box survive the more rapid demise
20 of the cassette player with many moving parts, which wear too
quickly. Replacing the cassette player with a more durable
source of music, such as a CD player, did not eliminate entirely
this waste of good components.

25 What was needed was the ability to replace the "source" of music
containing moving parts, whether that be a CD or cassette
player, in the same way we do in a "component" home stereo. That
way, one can continue to use the amplifier portion while it lasts
and would not have to worry about replacing the entire CD or

cassette player whenever the components containing the moving parts fail.

Recent developments in consumer electronics have introduced
5 portable handheld multimedia devices such as MP3 players, which
enable a user to download audio files from an internet site and
store them in an MP3 (MPEG-1 audio layer 3) format for subsequent
organizing, transmitting, manipulating, reviewing and selective
listening. MP3 players (such as the IPODTM player manufactured
10 by Apple Computer, Inc. of Cupertino, Calif. in 2001) have
revolutionized many people's music-listening experience and
music fans now loathe using a cassette or CD player.

The problem with these portable handheld multimedia devices is
15 that they are devoid of any means of amplification. If an owner
of an IPODTM, for instance, desires portable amplified music as
experienced through a cassette tape or CD player, he or she will
have to invest in a second player, which is often cost
prohibitive.

20 The only reasonable alternative, therefore, is a portable
"dockable" boom box that is compatible with most of existing
multimedia devices and true to the sense of a portable
amplifier. This boom box will also solve the problem of the
25 source of music wearing out long before the more stable and solid
components or integrated circuits, which make up the amplifier
and speaker portions. To restate, in the evolution of the

portable handheld multimedia devices, combination of them with a convenient and mobile amplification vehicle or "boom box" is a very logical step.

5 Up until now, however, there is nothing on the market which directly addresses this potential need of a truly portable amplifying device which would accommodate most of the existing MP3 players, such as an IPOD™, IPOD™ 2.0, IPOD™ 3.0 and IPOD™ mini, or other portable handheld multimedia devices on the
10 market.

The InMotion System introduced by Altec Lansing is known to be the first attempt to create a portable amplifier for the IPOD™. The problem with the InMotion System is that, while the system
15 may be compact and portable, it cannot be easily moved around once the unit is set up and the multimedia device is playing. Attempting to do so is likely to result in the IPOD™ falling out of the system and even possibly being damaged in the process.

20 Furthermore, the InMotion System is only compatible with older MP3 players such as the original IPOD™ and not with newer and smaller models such as an IPOD™ mini. To accommodate smaller MP3 players, the system will need extra hardware (assuming this can be achieved) and consumers will have to purchase it at
25 additional expenses whether they use such hardware or not.

The innovation in this product comes from its compatibility and portability. This portable amplifying apparatus is compatible with all existing MP3 players and other portable handheld multimedia devices that are smaller than the original IPOD™, and consumers do not have pay for extra hardware. In addition, unlike the InMotion System, this standalone product can be easily moved around while the source of music is playing, which makes this invention true to the sense of a portable amplifier.

SUMMARY OF THE INVENTION

The invention relates to a portable audio amplifying apparatus for portable handheld multimedia devices. This amplifying apparatus can be considered as six main parts: a receptacle, 5 a connecting means, an amplifier means, at least one speaker 1, a power source means, and a handle 2. As used herein, a power source means includes but is not limited to a plurality of batteries, a rechargeable battery module and an AC power source via a DC adaptor.

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The receptacle is made up of a door assembly and a lock plate assembly operatively linked to the receptacle. The receptacle has a narrow space 3 carved in along one side of the wall.

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The door assembly is made up of a door 4, a brace 5 and an axle 6. The lock plate assembly is made up of a plate 7, a spring mechanism 8, and a plug connector pad 9 on top of the plate 7. These parts are assembled together with adhesive after molding.

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The connecting means is made up of a finger grasp 10, an input plug 11, a spring mechanism 12 and a cable connector 13.

The amplifier means is made up of an input cable and an audio signal sensor.

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This invention is designed to be used as follows. The door 4 of the receptacle is normally closed, and pressing a button on

top of the unit would release the door **4**. The input plug **11** that is nestled in the space **3** along the side wall of the receptacle should be pushed aside prior to sliding an IPOD™, an MP3 player or any other portable handheld multimedia device
5 into the receptacle (this is shown as arrow **14** in Fig. 13). Once the device is in place, the input plug **11** should then be inserted into an "audio out" or "headphone" jack of the device through a hole **15** in the plug connector pad **9** on top of the lock plate **7** (this is shown as arrow **16** in Fig. 16) and should be rotated
10 and moved laterally (these are shown as arrows **18** and **19**, respectively, in Fig. 15) for a desired tight fit. Once the door **4** of the receptacle is closed (this is shown as arrow **20** in Fig. 16), the lock plate **7** pushes forward the portable handheld multimedia device of various sizes (this is shown as
15 line **21** in Fig. 17) to stabilize the device and to allow easy access to the device's control units, which can be accessed and manipulated through the opening in the door **4**. To remove the multimedia device, the button on top should be pressed to release the door **4** open.

DETAILED DESCRIPTION OF THE FIGURES

This invention relates to a portable audio amplifying apparatus for portable handheld multimedia devices. The concept of this invention is shown in Figure 1 to Figure 18.

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The drawings which illustrate specific embodiments of the invention should not be construed as restricting the spirit or scope of the invention in any way:

10 Figure 1 is a connectivity flow chart.

Figure 2 is a slanted front view of the receptacle.

15 Figure 3 is a top view of the finger grasp and the input plug nestled in the plug connector pad of the lock plate assembly.

Figure 4 is a sectional view of the finger grasp and the input plug nestled in the plug connector pad of the lock plate assembly.

20 Figure 5 is a top view of the plug connector pad with a hole to insert the input plug into the output jack of the portable handheld multimedia device.

25 Figure 6 is a side view of the plug connector pad with a hole to insert the input plug into the output jack of the portable handheld multimedia device.

Figure 7 is a top view of the door assembly.

Figure 8 is a front view of the door assembly.

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Figure 9 is a side view of the door assembly.

Figure 10 is a front view of the input plug, the finger grasp, the spring mechanism, and the cable connector.

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Figure 11 is a side view of the input plug, the finger grasp, the spring mechanism, and the cable connector.

Figure 12 is a top view of the lock plate assembly designed to
15 accommodate in the receptacle an IPOD™ 3.0, an IPOD™ mini or any other portable handheld multimedia device that is smaller than the original IPOD™.

Figure 13 is a slanted front view of the action of moving the
20 plug aside prior to sliding in the portable handheld multimedia device.

Figure 14 is a front view of the action inserting the original
IPOD™, an IPOD™ 2.0 or any other portable handheld multimedia
25 device of a similar size while pushing back the lock plate assembly.

Figure 15 is a top view of the action rotating and moving the input plug and the finger grasp nestled in the plug connector pad to ensure a tight fit of the portable handheld multimedia device.

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Figure 16 is a front view of the action of inserting the input plug into an "audio out" or "headphone" jack of the portable handheld multimedia device and closing the door.

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Figure 17 is a slanted front view of the lock plate assembly "cupping" and stabilizing portable handheld multimedia devices of various sizes, including IPOD™, IPOD™ 3.0, and IPOD™ mini models.

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Figure 18 is a front view of the portable audio amplifying apparatus with the portable handheld multimedia device placed inside the receptacle.

DETAILED DESCRIPTION OF THE INVENTION

The invention described herein pertains to a portable audio amplifying apparatus for portable handheld multimedia asset player devices.

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This invention provides a portable audio amplifying apparatus comprising: a receptacle for receiving a portable handheld multimedia device; a connecting means for connecting the portable handheld multimedia device to the receptacle; an amplifier means for amplifying a plurality of audio signals from the portable handheld multimedia device; at least one audio speaker 1 for delivering quality audio generated by the amplifier means; a power source means for supplying electricity to the amplifying means and the audio speakers 1; and a handle 2 on the top of the apparatus to enhance portability.

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In an embodiment, the portable handheld multimedia device is a high-capacity MP3 player, including IPOD™, IPOD™ 2.0, IPOD™ 3.0 and IPOD™ mini models, or any other suitable portable handheld multimedia asset player device for recording, organizing, transmitting, manipulating, and reviewing audio files.

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In this invention, the portable handheld multimedia device, such as an IPOD™ or any other MP3 player, is placed in a receptacle of the portable audio amplifying apparatus. Figure 2 shows a slanted front view of the components of the receptacle. As shown in Figure 2, the front door 4 of the receptacle opens to receive a portable handheld multimedia device, and a door assembly and a lock plate assembly are operatively linked the receptacle.

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The operation of this portable amplifier is as follows: Pressing a button on top of the amplifier opens the door **4** and the input plug **11** nestled in the space **13** carved in along the side wall of the receptacle is pushed aside before inserting an MP3 player like IPOD™ or any other portable handheld multimedia device. In an embodiment the input plug **11** is a 3.5mm stereo input plug.

Figure 8 illustrates a front view of the components of the door assembly. As shown in Figure 8, the "L"-shaped door **4** is constructed of molded plastic and contains a large opening **22** to enable the listener to access the display and control buttons of the portable handheld multimedia device. As shown, the "L"-shaped brace **5** of the door **4** is constructed of durable metal or other suitable material to prevent the door **4** from accidentally opening and the player from accidentally falling out of the receptacle. As shown in Figure 8, the axle **6** of the door **4** is constructed of durable metal or other suitable material to further prevent the door **4** from accidentally opening, and located in the door **4** hinge to secure the portable handheld multimedia device from accidentally falling out of the front compartment. Furthermore, rubber sheet foam cut in strips and with fabric lining is adhered with adhesive to the plastic interior of the door **4** to gently cradle and protect the multimedia device.

Figure 12 illustrates a top view of the lock plate assembly of the receptacle to accommodate MP3 players, including IPOD™ players, or other portable handheld multimedia devices of various

sizes. If it is an MP3 player or any other portable handheld multimedia device of a size similar to that of an original IPOD™ player (such as an IPOD™ 2.0), the lock plate 7 should be pushed back before the device is inserted into the receptacle (this is shown as arrow 23 in Fig. 14). If it is an MP3 player or any other portable handheld multimedia device that is smaller than the original IPOD™ (such as IPOD™ 3.0 or IPOD™ mini players), once the device is securely inserted in the front plastic portion of the lock plate 7, the spring mechanism 12 pushes the lock plate 7 forward to provide easier access to the control units of the device and to maintain a tight fit of the device (this is shown in Fig. 12). The control units of the portable handheld multimedia device can be accessed and manipulated through the opening 22 in the door 4. Furthermore, rubber sheet foam cut in strips and with fabric lining is adhered with adhesive to runners on the plate 7 to gently cradle and protect the device.

Figure 10 illustrates a front view of the connecting means sending the audio signals from the portable handheld multimedia device to the amplifier means. Once the multimedia device is securely placed in the receptacle, the input plug 11 should be inserted into an "audio out" or "headphone" jack of the multimedia device through a hole 15 in the plug connector pad 9. As shown in Figure 10, the input plug 11 is a standard 3.5mm mini stereo plug. As shown, the input plug 11 is attached to the finger grasp 10 that is uniquely shaped to accommodate large fingers in the confined interior of the receptacle, and the finger grasp 10 rests on

top of the lock plate assembly once the input plug 11 is inserted into an "audio out" or "headphone" jack of the multimedia device. As shown in Figure 10, the input plug 11 is attached to the spring mechanism 12 through the cable connector 13 to secure the input
5 plug 11 in place.

Figure 4 illustrates a front view of the finger grasp 10 and the input plug 11 nestled in the mount of the receptacle. As shown in Figure 4, once the multimedia device is inserted, the
10 input plug 11 and the finger grasp 10 should be rotated and moved laterally in any direction within the top frame of the lock plate assembly. The circular and lateral movements of the input plug 11 and the finger grasp 10 are shown as arrows 18 and 19, respectively, in Figure 15. All the pieces of the plug connector
15 pad 9 on top of the lock plate 7 is constructed of "snug" cast rubber to allow the input plug 11 and the finger grasp 10 to move laterally in any direction and the user to set the best position of the plug 11 for desired tight fit once and not have to set it again later.

20 Once the input plug 11 is adjusted, the door 4 should be closed, which would create lateral tension to stabilize the lock plate 7 and the input plug 11 embedded in the multimedia device. Thus, closing the door 4 locks the plate 7 into place and prevents
25 the multimedia device, regardless its size, from moving around.

Figure 18 illustrates a front view showing the portable audio

amplifying apparatus with the portable handheld multimedia device inserted into the receptacle. As shown in Figure 18, the audio speakers 1 to deliver audio generated by the amplifier means are OEM or after-market audio speakers. As shown, a handle
5 2 is placed on top to enhance portability.

The amplifier means of this invention comprises an input cable and an audio signal sensor. The input cable runs into a signal sensor and automatically switches on the amplifier. Once the
10 signal sensor sends audio signals, the amplifier then sends the amplified signals to the audio speakers 1. As used herein, amplifier means include but is not limited to an amplifier comprising an input terminal connected to a source of electrical signals and an output terminal connected to a load, power output
15 means.

In one embodiment, this invention uses an AC power source via a DC adaptor. In another embodiment, this invention uses a power source means of a plurality of batteries that may be rechargeable.
20 In yet another embodiment, this invention uses a rechargeable battery module as a power source means.

As will be apparent to those skilled in the art in light of the foregoing disclosures, many alterations and modifications are
25 possible in the practice of this invention without departing from the spirit or scope thereof. Accordingly, the scope of the invention is to be construed in accordance with the substance defined by the following claims.